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EXAMINER

PIZIALI, ANDREW T

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/857,209

Applicant(s)

TACHIBANA ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-9 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13. 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2-3, 5-6, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,143,796 to Sebastiano et al. (hereinafter referred to as Sebastiano).

Regarding claims 2-3, 5-6, 9 and 11, Sebastiano discloses a laminate comprising a substrate, a titanium dioxide layer, a silicon oxide or aluminum oxide interlayer, a silver layer, a second silicon oxide or aluminum oxide interlayer, and a second titanium dioxide layer (column 4, lines 41-44 and the abstract).

Regarding claim 2, Sebastiano does not mention the specific refractive index of titanium dioxide layers, but considering that the applicant's specification discloses that titanium oxide alone (titanium dioxide) may be used for the titanium oxide layers (page 10, lines 7-14), the titanium dioxide layers of Sebastiano appear to possess a refractive index of at least 2.4 at a wavelength of 550nm.

Regarding claims 6 and 9, Sebastiano does not give the specific sheet resistance value, visible light transmittance and the visible light reflectance for every conceivable article structure disclosed by Sebastiano, but considering the substantially identical article disclosed by Sebastiano, compared to applicant's claimed article, it appears that the article disclosed by Sebastiano possesses the claimed properties.

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3. Claims 2-4, 6, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,085,926 to Iida et al. (hereinafter referred to as Iida).

Regarding claims 2-4, 6, 9 and 11, Iida discloses a laminate comprising a substrate (10), a titanium dioxide layer (21), an interlayer (22), a metal layer (23), a second interlayer (24), and a second titanium dioxide layer (25) (column 2, lines 14-43).

Regarding claim 2, Iida does not mention the specific refractive index of titanium dioxide layers, but considering that the applicant's specification discloses that titanium oxide alone (titanium dioxide) may be used for the titanium oxide layers (page 10, lines 7-14), the titanium dioxide layers of Iida appear to possess a refractive index of at least 2.4 at a wavelength of 550nm.

Regarding claim 3, Iida discloses that the interlayers may be nitride or oxynitride layers (column 2, lines 14-43).

Regarding claim 4, Iida discloses that the thickness of each interlayer independently is from 30 to 200 Å (column 2, lines 14-43).

Regarding claims 6 and 9, Iida does not give the specific sheet resistance value, visible light transmittance and the visible light reflectance for every conceivable article structure disclosed by Iida, but considering the substantially identical article disclosed by Iida, compared to applicant's claimed article, and considering the properties disclosed in Table 2 of Iida, it appears that the article disclosed by Iida possesses the claimed properties.

4. Claims 2-6, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,110,662 to Depauw et al. (hereinafter referred to as Depauw).

Regarding claims 2-6, 9 and 11, Depauw discloses a laminate comprising a substrate, a

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titanium dioxide layer, a zinc oxide interlayer, a silver layer, a sacrificial metal oxide interlayer, and a second titanium dioxide layer (column 3, lines 20-35 and column 5, lines 8-20).

Regarding claim 2, Depauw does not mention the specific refractive index of titanium dioxide layers, but considering that the applicant's specification discloses that titanium oxide alone (titanium dioxide) may be used for the titanium oxide layers (page 10, lines 7-14), the titanium dioxide layers of Depauw appear to possess a refractive index of at least 2.4 at a wavelength of 550nm.

Regarding claim 4, Depauw discloses that the thickness of the zinc oxide interlayer is not greater than 15 nm (column 3, lines 20-35) and the thickness of the sacrificial metal oxide layer is in the range of 2 to 15 nm (column 8, lines 10-28).

Regarding claims 6 and 9, Depauw does not give the specific sheet resistance value, visible light transmittance and the visible light reflectance for every conceivable article structure disclosed by Depauw, but considering the substantially identical article disclosed by Depauw, compared to applicant's claimed article, it appears that the article disclosed by Depauw possesses the claimed properties.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sebastiano.

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Sebastiano discloses a laminate comprising a substrate, a titanium oxide layer, a silicon oxide or aluminum oxide layer, a silver layer, a second silicon oxide or aluminum oxide layer, and a second titanium layer (column 4, lines 41-44 and the abstract). Sebastiano discloses that the thickness of each interlayer independently is from about 40 to 1500 Å (column 4, lines 19-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness of the interlayers from 0.1 to 30 nm, because it is understood by one of ordinary skill in the art that the layer thickness' determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sebastiano as applied to claims 2-3, 5-6, 9 and 11 above, and further in view of USPN 6,074,732 to Garnier et al. (hereinafter referred to as Garnier)

Sebastiano discloses that the glass article may be laminated and may be used for vehicle windows (column 4, lines 47-53), but fails to mention laminating with a resin film. Garnier discloses that it is known in the art to laminate a vehicle window with a layer of PET to increase the shattering resistance (column 6, lines 64-67 and column 7, lines 1-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Sebastiano, with a layer of PET, as disclosed by Garnier, because the PET layer increases the shattering resistance.

8. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sebastiano as applied to claims 2-3, 5-6, 9 and 11 above, and further in view of USPN 5,723,075 to Hayasaka et al. (hereinafter referred to as Hayasaka).

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Sebastiano discloses that the glass article may be laminated and may be used for vehicle windows (column 4, lines 47-53), but fails to mention laminating with a resin film. Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Sebastiano, with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.

9. Claims 5-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida.

Regarding claims 5-6 and 9, Iida discloses a laminate comprising a substrate (10), a titanium dioxide layer (21), an interlayer (22), a metal layer (23), a second interlayer (24), and a second titanium dioxide layer (25) (column 2, lines 14-43). Iida discloses that the metal layer is preferably Ti, Zr, Ta, Cr, Ni-Cr alloy, or stainless steel, but also discloses that Ag and Au may be used as the metal layer in laminated glass articles where moisture resistance, wear resistance and corrosion resistance are not as important (column 1, lines 6-25 and column 4, lines 15-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the metal layer of Iida from Ag or Au if the article is utilized as a laminate, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Regarding claims 6 and 9, Iida does not give the specific sheet resistance value, visible light transmittance and the visible light reflectance for every conceivable article structure

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disclosed by Iida, but considering the substantially identical article disclosed by Iida, compared to applicant's claimed article, and considering the properties disclosed in Table 2 of Iida, it appears that the article disclosed by Iida possesses these properties.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iida as applied to claims 2-4, 6, 9 and 11 above, and further in view of Garnier.

Iida discloses that the glass article, although not necessary, may be laminated and may be used for vehicle windows (column 1, lines 6-11 and lines 26-46), but fails to mention laminating with a resin film. Garnier discloses that it is known in the art to laminate a vehicle window with a layer of PET to increase the shattering resistance (column 6, lines 64-67 and column 7, lines 1-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Iida, with a layer of PET, as disclosed by Garnier, because the PET layer increases the shattering resistance.

11. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida as applied to claims 2-4, 6, 9 and 11 above, and further in view of Hayasaka.

Iida discloses that the glass article, although not necessary, may be laminated and may be used for vehicle windows (column 1, lines 6-11 and lines 26-46), but fails to mention laminating with a resin film. Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Iida, with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the



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resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Depauw as applied to claims 2-6, 9 and 11 above, and further in view of Garnier.

Depauw discloses that the glass article may be laminated and may be used for vehicle windows (column 1, lines 35-39 and column 4, lines 15-30), but fails to mention laminating with a resin film. Garnier discloses that it is known in the art to laminate a vehicle window with a layer of PET to increase the shattering resistance (column 6, lines 64-67 and column 7, lines 1-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Depauw, with a layer of PET, as disclosed by Garnier, because the PET layer increases the shattering resistance.

13. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Depauw as applied to claims 2-6, 9 and 11 above, and further in view of Hayasaka.

Depauw discloses that the glass article may be laminated and may be used for vehicle windows (column 1, lines 35-39 and column 4, lines 15-30), but fails to mention laminating with a resin film. Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Depauw, with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.


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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
atp  
April 29, 2003

Andrew T Piziali  
Examiner  
Art Unit 1775

  
DEBORAH JONES  
SUPERVISORY PATENT EXAMINER